IN THE CLAIMS

Please amend the claims as described below. In accordance with 37 CFR §1.121, a complete listing of all claims in the application is provided below. Notably, the status of each claim is indicated in the parenthetical expression adjacent to the corresponding claim number.

Claims 1 - 50 (**canceled**).

Claim 51 (**new**): An EIW unit for use in sensing a parameter of a surface structure that is formed by integrated circuit processing equipment which is used to manufacture an integrated circuit, the EIW unit comprising:

a substrate having a wafer-shaped profile; and

a plurality of sensors, disposed on or in the substrate, to sample the process parameter of the surface structure that is formed above the sensors and on the EIW unit by the integrated circuit processing equipment during processing.

Claim 52 (**new**): The EIW unit of claim 51 wherein the plurality of sensors includes a plurality of light sensors and wherein the EIW further includes a predetermined surface layer disposed on the EIW and above the plurality of light sensors wherein the predetermined surface layer is capable of receiving a surface structure thereon.

Claim 53 (**new**): The EIW unit of claim 52 wherein predetermined surface layer includes a plurality of layers.

Claim 54 (**new**): The EIW unit of claim 53 wherein the plurality of layers includes a composite dielectric structure.

Claim 55 (**new**): The EIW unit of claim 52 wherein the predetermined surface layer is patterned to guide or shape the light sampled by the plurality of light sensors.

Claim 56 (**new**): The EIW unit of claim 52 wherein the predetermined surface layer includes a grating structure having a refractive index.

Claim 57 (**new**): The EIW unit of claim 56 wherein the refractive index of the grating structure is capable of being changed dynamically.

Claim 58 (**new**): The EIW unit of claim 56 wherein the EIW unit further includes an acoustic modulation module disposed in or on the substrate to control the refractive index of the grating structure.

Claim 59 (**new**): The EIW unit of claim 51 wherein the plurality of sensors operates in an end-point mode.

Claim 60 (**new**): The EIW unit of claim 51 wherein the plurality of sensors operates in a real-time mode.

Claim 61 (**new**): The EIW unit of claim 51 wherein the plurality of sensors includes a plurality of light sensors and wherein the light sensors sample light that is reflected or scattered by the surface structure formed by the integrated circuit processing equipment during processing.

Claim 62 (**new**): The EIW unit of claim 61 further including a first light source, disposed on or in the substrate, to output light to permit sampling of the process parameter of the surface structure by the plurality of sensors.

Claim 63 (**new**): The EIW unit of claim 62 wherein the intensity of the light output by the first light source may be varied or modulated.

Claim 64 (**new**): The EIW unit of claim 62 further including a second light source disposed on or in the substrate, to output light to permit sampling of the process parameter of the surface structure by the plurality of sensors and wherein the intensity of the light output by the first light source may be varied or modulated relative to the second light source.

Claim 65 (**new**): The EIW unit of claim 62 wherein the process parameter is a thickness of the surface structure formed above the sensors and on the EIW unit by the integrated circuit processing equipment during processing.

Claim 66 (**new**): The EIW unit of claim 61 wherein the plurality of light sensors is CMOS devices, charge coupled devices, or photodiodes.

Claim 67 (**new**): The EIW unit of claim 61 wherein the plurality of light sensors periodically or continuously samples the intensity of the light while the EIW unit is disposed in the integrated circuit processing equipment and undergoing processing.

Claim 68 (**new**): The EIW unit of claim 67 further including data storage, coupled to the plurality of light sensors, to store data which is representative of the parameter of the surface structure.

Claim 69 (**new**): The EIW unit of claim 67 further including:

communication circuitry to provide the data which is representative of the parameter to external circuitry; and

at least one rechargeable battery, to provide electrical power to the communication circuitry.

Claim 70 (**new**): The EIW unit of claim 67 wherein the process parameter is a surface profile of the surface structure.

Claim 71 (**new**): A method of measuring a process parameter of a surface structure that is formed by an integrated circuit manufacturing process wherein the method of measuring the process parameter uses an EIW unit having a substrate, which includes a

wafer-shaped profile, and a plurality of sensors disposed on or in the substrate, the method comprising:

placing the substrate into the integrated circuit processing equipment;

performing the integrated circuit manufacturing process that forms a surface structure above the plurality of sensors during the manufacturing process;

enabling the plurality of sensors to sample the process parameter of the surface structure;

sampling the process parameter of the surface structure using the plurality of sensors; and

determining the process parameter of the surface structure using data from the plurality of sensors.

Claim 72 (**new**): The method of claim 71 wherein the EIW unit further includes a predetermined surface layer having a refractive index wherein the predetermined surface layer is disposed above the plurality of light sensors and wherein the method further includes changing the refractive index of the predetermined surface layer.

Claim 73 (**new**): The method of claim 72 further including dynamically changing the refractive index of the predetermined surface layer while performing the integrated circuit manufacturing process.

Claim 74 (**new**): The method of claim 71 wherein the process parameter of the surface structure that is formed by the integrated circuit manufacturing process is sampled after performing the integrated circuit manufacturing process.

Claim 75 (**new**): The method of claim 71 wherein the process parameter of the surface structure that is formed by the integrated circuit manufacturing process is sampled while performing the integrated circuit manufacturing process.

Claim 76 (**new**): The method of claim 71 wherein the EIW unit further includes a plurality of light sources wherein the plurality of sensors samples the light output by the plurality of light sources and wherein the method further includes enabling the plurality of light sources to output light and wherein sampling the process parameter of the surface structure using the plurality of sensors includes sampling the response to the light output by the plurality of light sources using the plurality of sensors.

Claim 77 (**new**): The method of claim 76 wherein the plurality of light sources output light at different wavelengths.

Claim 78 (**new**): The method of claim 76 wherein sampling the response to the light output by the plurality of light sources includes sampling the light that is reflected or scattered by the surface structure formed by the integrated circuit processing equipment during processing.

Claim 79 (**new**): The method of claim 76 further including varying the intensity of the light output by the plurality of light sources.

Claim 80 (**new**): The method of claim 76 further including varying the intensity of the light output by a first light source of the plurality of light sources relative to another light source of the plurality of light sources.

Claim 81 (**new**): The method of claim 76 wherein sampling the response to the light output by the plurality of light sources includes periodically or continuously sampling the response to the light output by the plurality of light sources while performing the integrated circuit manufacturing process.

Claim 82 (**new**): The method of claim 76 further including sampling the intensity of the reflected or scattered light using the plurality of sensors.

Claim 83 (**new**): The method of claim 82 wherein the plurality of light sources is disposed on or in the substrate of the EIW unit.

Claim 84 (**new**): The method of claim 83 further including varying the intensity of the light output by the plurality of light sources.

Claim 85 (**new**): The method of claim 83 further including varying the intensity of the light output by a first light source of the plurality of light sources relative to another light source of the plurality of light sources.

Claim 86 (**new**): The method of claim 83 wherein sampling the response to the light output by the plurality of light sources includes periodically or continuously sampling the response to the light output by the plurality of light sources while performing the integrated circuit manufacturing process.

Claim 87 (**new**): The method of claim 83 further including sampling the response to the light output by the plurality of light sources after performing the integrated circuit manufacturing process.

Claim 88 (**new**): The method of claim 83 wherein the EIW unit further includes a predetermined surface layer having a refractive index wherein the predetermined surface layer is disposed above the plurality of sensors and plurality of light.

Claim 89 (**new**): The method of claim 88 further including changing the refractive index of the predetermined surface layer.

Claim 90 (**new**): The method of claim 88 further including dynamically changing the refractive index of the predetermined surface layer while performing the integrated circuit manufacturing process.

Claim 91 (**new**): The method of claim 83 wherein the process parameter is a thickness of the surface structure.

Claim 92 (**new**): The method of claim 71 wherein the process parameter is a thickness of the surface structure.

Claim 93 (**new**): The method of claim 71 wherein the process parameter is a spatial distribution of a surface structure.

Claim 94 (**new**): A system for sensing a process parameter of a surface structure that is formed by integrated circuit processing equipment which is used to manufacture an integrated circuit, the system comprising:

an EIW unit that is capable of being disposed in the integrated circuit processing equipment, the EIW unit including:

substrate having a wafer-shaped profile; and

a sensor, disposed on or in the substrate, to sample the process parameter of the surface structure that is formed by integrated circuit processing equipment, wherein the sensor samples the process parameter while or after the EIW unit is subjected to processing by the integrated circuit processing equipment; and

a computing device to receive the samples from the sensor and determine the process parameter of the surface structure using the samples.

Claim 95 (**new**): The system of claim 94 wherein the sensor includes CMOS devices, charge coupled devices, or photodiodes.

Claim 96 (**new**): The system of claim 94 wherein the process parameter is a surface profile of the surface structure.

Claim 97 (**new**): The system of claim 94 wherein the process parameter is a thickness of the surface structure.

Claim 98 (**new**): The system of claim 94 wherein the sensor operates in an end-point mode.

Claim 99 (**new**): The system of claim 94 wherein the sensor operates in a real-time mode.

Claim 100 (**new**): The system of claim 94 wherein the EIW unit further includes a predetermined surface layer disposed above the sensor wherein the predetermined surface layer is capable of receiving a surface structure thereon, and wherein the system further includes a source that outputs light.

Claim 101 (**new**): The system of claim 100 wherein the source outputs light at different wavelengths.

Claim 102 (**new**): The system of claim 100 wherein the sensor includes a plurality of light sensors wherein the light sensors sample light that is reflected or scattered by a surface structure that is formed by the integrated circuit processing equipment during processing.

Claim 103 (**new**): The system of claim 102 wherein the predetermined surface layer is patterned to guide or shape the light output by the source.

Claim 104 (**new**): The system of claim 102 wherein the predetermined surface layer includes a grating structure having a refractive index.

Claim 105 (**new**): The system of claim 104 wherein the refractive index of the grating structure is capable of being changed dynamically.

Claim 106 (**new**): The system of claim 102 wherein the EIW unit further includes an acoustic modulation module disposed in or on the substrate to control the refractive index of the grating structure.

Claim 107 (**new**): The system of claim 100 wherein predetermined surface layer includes a plurality of layers.

Claim 108 (**new**): The system of claim 107 wherein the plurality of layers includes a composite dielectric structure.

Claim 109 (**new**): The system of claim 100 wherein the source includes a plurality of light sources disposed in or on the substrate of the EIW unit.

Claim 110 (**new**): The system of claim 109 wherein the sensor and source operate in an end-point mode.

Claim 111 (**new**): The system of claim 109 wherein the sensor and source operate in a real-time mode.

Claim 112 (**new**): The system of claim 109 wherein the intensity of the light output by the plurality of light sources may be varied or modulated.

Claim 113 (**new**): The system of claim 109 wherein the intensity of the light output by a first light source of the plurality of light sources may be varied or modulated relative to another light source of the plurality of light sources.

Claim 114 (**new**): The system of claim 109 wherein the computing device determines a thickness of a surface layer formed by the integrated circuit processing equipment during processing.

Claim 115 (**new**): The system of claim 109 wherein the computing device determines a spatial distribution of a surface layer formed by the integrated circuit processing equipment during processing.